



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,844	09/05/2006	Klaus Maldener	3831	3320
278	7590	03/05/2009		
MICHAEL J. STRIKER 103 EAST NECK ROAD HUNTINGTON, NY 11743			EXAMINER MOK, ALEX W	
			ART UNIT 2834	PAPER NUMBER
			MAIL DATE 03/05/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,844

Applicant(s)

MALDENER ET AL.

Examiner

ALEX W. MOK

Art Unit

2834

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-25 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-25 and 27-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date 1/14/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/5/08 and 12/17/08 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3, 5-25, and 27-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In line 13 of claim 1, the term “**uninterrupted**” used for the magnet was not described in the original disclosure, and therefore fails to comply with the written description requirement.

Since claims 2, 3, 5-25, and 27-31 are dependent upon claim 1, these claims are also rejected under 35 U.S.C. 112, first paragraph for the same reasons given for claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 5, 10, 11, 13-17, 19, 24, 25, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. (WIPO Document No.: WO 3067742 A1), and further in view of Moribayashi et al. (US Patent No.: 5576588).

For claim 1, Wehrle et al. disclose a rotor of an electrical machine having at least one permanent magnet (reference numeral 2, see figure 1), which is embodied as a hollow cylinder and which has axial contact faces that cooperate with corresponding axial clamping faces (reference numeral 7) of at least one retaining element (reference numeral 4), with which element the permanent magnet is secured to the rotor (see figure 1). Wehrle et al. also teach the retaining element having a spring element (reference numeral 7, see figures 2, 3), which presses the clamping face against the contact face with a contact pressure (figure 1). Wehrle et al. do not specifically teach at least one of the clamping faces having a knurling extending in the radial direction, nor

the knurling configured under the action of an axial clamping force to dig into the contact faces of the magnet or the surface coating of the magnet.

Moribayashi et al. teach a retaining component for permanent magnets that extend in the radial direction (reference numeral 24, figures 8, 9), which under an axial clamping force would dig into the contact face of the magnet (reference numeral 18, figure 8).

It would have been obvious to have the radial knurling configuration, since the similar configuration taught by Moribayashi et al. is related to securing the magnet component, the same problem the claimed invention is concerned with, therefore enabling a person of ordinary skill in the art to use this technique in the invention of Wehrle et al.

For claim 3, Wehre et al. teach the retaining element having a ring element (see figures 1-3), on whose axial side, the clamping face is integrally formed (see figures 1-3).

For claims 5 and 19, Wehrle et al. teach the spring element (reference numeral 7, see figures 2, 3) being braced axially and radially on the retaining element and elastically supporting the permanent magnet (see figure 1), and it would have been obvious to have the spring element be configured as a cup spring since this would merely involve changing the shape, and this would press the ring element against the magnet.

For claim 10, Wehrle et al. disclose the rotor having a rotor shaft (reference numeral 3), embodied as a magnetic short circuit (see figure 1), which is surrounded by a ring element that has the clamping face (reference numeral 7).

For claims 11 and 24, Wehrle et al. teach the retaining element having a radial collar (reference numeral 5, see figure 1) on which the permanent magnet can be braced for radial precentering, and the retaining element of Wehrle et al. can be considered to have a ring element.

For claim 13, Wehrle et al. teach the retaining element being embodied as a sleeve with an axial shoulder on which the contact face is braced (see figure 1).

For claim 14, Wehrle et al. illustrate the axial shoulder of the retaining element being embodied as the clamping face (see figure 1).

For claim 15, the inventions of Wehrle et al. and Moribayashi et al. teach the claimed invention except for making the permanent magnet, on its inside face, have extensions with which the permanent magnet is pressed against the sleeve for precentering. It would have been obvious to have this configuration, since this would involve a mere change in the shape of the component, and this claimed configuration is just one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of securing components of an invention. In re Dailey 149 USPQ 47, 50 (CCPA 1966). See also Glue Co. v. Upton 97 US 3,24 (USSC 1878).

For claim 16, the inventions of Wehrle et al. and Moribayashi et al. teach the claimed invention except for having the retaining element be embodied as a magnetic short circuit. It would have been obvious to include this feature, since this would involve

a mere change in the position of a component, and it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

For claims 17 and 25, Wehrle et al. teach the spring element being embodied as a speed nut (reference numeral 7, see figures 1-3), which is braced directly on the sleeve, and it rests directly on one of the contact faces (see figure 1).

For claim 31, Wehrle et al. disclose the claimed invention except for the contact faces of the magnet being flat. Moribayashi et al. illustrate magnets having flat contact faces (reference numeral 18, figure 8), and it would have been obvious to apply this configuration with the knurling contacting this surface as explained for claim 1 above.

6. Claims 2, 6, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Moribayashi et al. as applied to claim 1 above, and further in view of Oberle et al. (German Patent Document No.: DE 100 53 245 A1).

For claims 2 and 27, the inventions of Wehrle et al. and Moribayashi et al. teach the claimed invention except for the knurling having radial grooves and raised areas. Oberle et al. teach the knurling having radial grooves and axially pointed raised areas which extend in the radial direction (see figure 4), and it would have been obvious to include this since the invention of Oberle et al. is related to securing components to the rotor (see the Abstract), therefore enabling a person of ordinary skill in the art to use this technique in the invention of Wehrle et al.

For claim 6, Wehrle et al. and Moribayashi et al. teach the claimed invention except for the raised areas engaging the inside face of the permanent magnet. Since it

would have been obvious to have the radial raised areas as explained for claim 2 above, then it would have been obvious for a person skilled in the art to include this in the invention of Wehrle et al. and have it engage the inside of the contact face of the permanent magnet for the purpose of transmitting a torque between the permanent magnet and the retaining element and/or to center the permanent magnet radially to the rotor.

For claims 28 and 29, Wehrle et al. and Moribayashi et al. teach the claimed invention except for the raised areas having sharp edges, nor the sharp edges having a wedge-shaped point. It would have been obvious to have this configuration since this would merely involve changing the shape of a component, which is recognized as an ordinary skill, and a skilled person of the art would have applied this feature for the purpose of further securing the magnet to the electrical machine.

For claim 30, Wehrle et al. and Moribayashi et al. teach the claimed invention, but does not specifically disclose the raised areas being composed of high-strength material. Since the invention of Oberle et al. already teach the knurling with raised areas as explained for claims 2 and 27 above, this component of Oberle et al. can still be considered to be composed of high-strength material since it would have been within the knowledge of a person of ordinary skill to choose a material with enough strength for the purpose of having sufficient stability for the operation of the machine.

7. Claims 7, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Moribayashi et al. as applied to claim 1 above, and further in view of Oshima et al. (US Patent Application Pub. No.: US 2004/0046469 A1).

For claims 7, 20, and 21, the inventions of Wehrle et al. and Moribayashi et al. teach the claimed invention except for the permanent magnet being manufactured of sintered material or plastic-bonded material.

Oshima et al. disclose a rotor having magnets of sintered material (see paragraph [0054], and figure 4).

It would have been obvious to include this configuration for the magnets, and also to have the permanent magnets be composed of either ferrite elements, rare earth elements, or elements such as NdFeB, since the invention of Oshima et al. is related to rotors for electrical machines, and a person of ordinary skill in the art would have been able to make the magnets out of a known material for its suitability in the invention, such as the material taught by Oshima et al.

8. Claims 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Moribayashi et al. as applied to claim 1 above, and further in view of Hamamura et al. (US Patent Application Pub. No.: US 2004/0051415 A1).

For claims 8 and 22, Wehrle et al. and Moribayashi et al. teach the claimed invention except for making the permanent magnet have a coating, and to have the coating be composed of either epoxy resin, nickel, or aluminum. The reference of Hamamura et al. disclose resin coating (see paragraph [0004]), and it would have been

obvious to have this feature since it would have been within the knowledge of a person of ordinary skill in the art to select a coating that is softer than the material of the raised areas for the purpose of protecting the magnet against corrosion.

9. Claims 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Moribayashi et al. as applied to claim 1 above, and further in view of Montagu (US Patent No.: 5936324).

For claims 9 and 23, Wehrle et al. and Moribayashi et al. teach the claimed invention except for having the raised areas be manufactured of harder material than the permanent magnet or the coating, have the raised areas composed of steel or Invar, and have a coefficient of thermal expansion that is adapted to the permanent magnet used. Montagu teaches a rotor in which the ends that are supporting the magnet are made of a certain coefficient of thermal expansion that would adapt to the permanent magnet (column 3, lines 47-52), and it would have been obvious to include the claimed feature since this would involve selecting a preferred material to form a component, which has been held to be within the general skill of a worker in the art.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Moribayashi et al. as applied to claim 1 above, and further in view of Huynh (US Patent No. 5942829).

For claim 12, Wehrle et al. and Moribayashi et al. teach the claimed invention except for having the retaining element be fixed on the rotor shaft by means of securing

rings, spring components, laser welding, adhesive bonding, material deformation, or shrink-fitting. Huynh teaches shrink fitting fixing means (see column 4, lines 15-17), and it would have been obvious to include this technique since these types of fixing means are well known in the art at the time the invention was made as exhibited by Huynh.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Moribayashi et al. as applied to claim 1 above, and further in view of Suzuki et al. (US Patent Application Pub. No.: US 2002/0130577 A1).

For claim 18, Wehrle et al. and Moribayashi et al. teach the claimed invention except for having the permanent magnet cooperate with a Hall sensor. Suzuki et al. teach a rotor with a magnet cooperating with a Hall sensor (see paragraph [0037]), and it would have been obvious to include this configuration for the purpose of detecting the rotational position of the rotor.

Response to Arguments

12. Applicant's arguments with respect to claims 1-3, 5-25, and 27-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references show embodiments of retaining the

magnet: Miyako et al. (JP 04165933 A), Moribayashi et al. (US 5578884 A),
Moribayashi et al. (US 5481148 A).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX W. MOK whose telephone number is (571)272-9084. The examiner can normally be reached on 7:30-5:00 Eastern Time, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen P. Leung can be reached on (571) 272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen P Leung/
Supervisory Patent Examiner, Art Unit 2834

/A. W. M./
Examiner, Art Unit 2834

